

REMARKS

The Examiner's Answer ("Answer") mailed November 12, 2008 has been carefully considered. The Examiner's Answer included a new ground of rejection as set forth in Section 9 of the Answer. The Applicant requests that prosecution be reopened under 37 C.F.R. § 41.39(b)(1) so that the present Amendment, which is relevant to the new ground of rejection, may be considered.

Claim Status and Amendment to the Claims

Claims 1-9, 13-17, 21-28, 32-36, 40-53, 57-61, 65-72, 76-80, and 84-97, 101-116, and 120-206 are currently pending. No claims stand allowed.

Claims 1-9, 13-17, 21-28, 32-36, 40-53, 57-61, 65-72, 76-80, and 84-97, 101-116, and 120-206 have been amended to further particularly point out and distinctly claim subject matter regarded as the invention. The claim amendments include changing all occurrences of "said" to "the." Support for these changes is found in the specification and figures as originally filed.

Claims 10-12, 29-31, 54-56, 73-75, 98-100, and 117-119 were previously cancelled without prejudice or disclaimer of the subject matter therein.

With this Amendment, Claims 18-20, 37-39, 62-64, and 81-83 have been cancelled without prejudice or disclaimer of the subject matter therein.

The 35 U.S.C. § 101 Rejection

Claims 18-20, 37-39, 62-64, 81-83, 197-198, and 199-200 stand rejected under 35 U.S.C. § 101, as allegedly claiming non-statutory subject matter, of which Claims 18, 37, 62, 81, 197, and 199 are independent claims.¹ With this Amendment, Claims 18-20, 37-39, 62-64, and 81-83 have been cancelled without prejudice or disclaimer of the subject matter therein, rendering the

¹ Examiner's Answer ("Answer") mailed November 12, 2008, at ¶ 2.

35 U.S.C. § 101 Rejection moot as to Claims 18-20, 37-39, 62-64, and 81-83. Also with this Amendment, independent claims 197 and 199 have been amended to recite in part “presenting a result of the comparing to a user of the wireless user device.” Accordingly, withdrawal of the 35 U.S.C. § 101 rejection is respectfully requested.

Dependent Claims 198 and 200

Claims 198 and 200 depend from Claims 197 and 199, respectively. Claims 197 and 199 being allowable, Claims 198 and 200 must also be allowable for at least the same reasons as for Claims 197 and 199.

The First 35 U.S.C. § 103 Rejection

Claims 1, 2, 10, 13, 16-18, 21, 24-28, 32, 35-37, 40, 43, 45, 46, 57, 60-62, 65, 68-72, 76, 79-81, 84, 87-89, 90, 101, 104, 106, 109, 112-116, 120, 123-125, 128, 131, 133, 134, 142, 145-147, 150-155, 158-160, 163, 165, 166, 174, 177-179, 182-187, 190-192, and 195 stand rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Li² in view of Welch,³ among which claims 1, 2, 10, 13, 17, 18, 21, 25, 28, 29, 32, 36, 37, 40, 45, 54, 57, 61, 62, 65, 69, 73, 76, 80, 84, 88, 89, 90, 98, 101, 105, 106, 109, 116, 117, 120, 124, 125, 128, 133, 142, 146, 147, 151, 159, 160, 163, 165, 174, 178, 179, 183, 186, 187, 191, and 192 are independent claims.⁴

According to the Manual of Patent Examining Procedure (M.P.E.P.),

To establish a *prima facie* case of obviousness, three basic criteria must be met. First there must be some suggestion or motivation, either in the references themselves or in the knowledge generally available to one of ordinary skill in the art, to modify the reference or to combine reference teachings. Second, there must be a reasonable expectation of success. Finally, the prior art reference (or references when combined) must teach or suggest all the claim limitations. The teaching or suggestion to make the claimed combination and the reasonable

² U.S. Patent No. 5,774,588 to Li.

³ U.S. Publication No. 2004/0097246 to Welch.

⁴ Answer at ¶ 4.

expectation of success must both be found in the prior art, not in the applicant's disclosure.⁵

Claim 1

Claim 1 as presently amended recites in part for *each* of the one or more candidate keyword strings, creating a *single* bit vector based at least in part on the each of the one or more candidate keyword strings, the bit vector for use in comparing an input bit vector with the bit vector to indicate whether an input keyword string represented by the input bit vector matches the one or more candidate keyword strings, the input keyword string provided by a user of the wireless user device. (emphasis added) Whereas, as indicated by the Examiner, Li discloses partitioning a signature vector into *seven* groups of 12 bits each, translating each of the seven 12-bit binary numbers into decimal numbers which are used to create a bucket address table. And rather than storing the one or more bit vectors as required by Claim 1, Li discloses storing pointers to lexicon entries in the bucket address table.

The Examiner also refers to signature vector 210 of Li.⁶ But as also pointed out by the Examiner, Li discloses “[a]ll signature vectors for the string can be pre-calculated.”⁷ As Li discloses multiple signature vectors for a string, Li cannot be said to disclose “creating a *single* bit vector based at least in part on the each of the one or more candidate keyword strings ...” as required by Claim 1. The Applicants respectfully submits it is improper to equate storing a single bit vector that is based at least in part on a candidate keyword string, with storing pointers to lexicon entries in a bucket address table as proposed by the Examiner.

Claims 18, 37, 62, and 81

⁵ M.P.E.P § 2143.

⁶ Answer at pp. 46-47.

⁷ Answer at p. 47. (emphasis added)

With this Amendment, Claims 18, 37, 62, and 81 have been cancelled without prejudice or disclaimer of the subject matter therein, rendering the 35 U.S.C. § 103 Rejection moot as to Claims 18, 37, 62, and 81.

Claim 2

Claim 2 depends from Claim 1. Claim 1 being allowable, Claim 2 must also be allowable for at least the same reasons as for Claim 1.

Claim 13

Claim 13 as presently amended recites in part creating a *single* bit vector based at least in part on the input keyword string. (emphasis added) Thus, the arguments made with respect to Claim 1 apply here as well. Claim 1 being allowable, Claim 13 must also be allowable for at least the same reasons as for Claim 1.

Claim 16

Claim 16 depends from Claim 13. Claim 13 being allowable, Claim 16 must also be allowable for at least the same reasons as for Claim 13.

Claim 17

Claim 17 as presently amended recites in part for *each* of the one or more candidate keyword strings, creating a *single* bit vector based at least in part on the each of the one or more candidate keyword strings, the bit vector for use in comparing an input bit vector with the bit vector to indicate whether an input keyword string represented by the input bit vector matches the one or more candidate keyword strings, the input keyword string provided by a user of the wireless user device. (emphasis added) Thus, the arguments made above with respect to Claim 1

apply here as well. Claim 1 being allowable, Claim 17 must also be allowable for at least the same reasons as for Claim 1.

Claim 21

Claim 21 as presently amended recites in part creating a *single* bit vector based at least in part on the input keyword string. (emphasis added) Thus, the arguments made with respect to Claim 1 apply here as well. Claim 1 being allowable, Claim 21 must also be allowable for at least the same reasons as for Claim 1.

Claim 24

Claim 24 depends from Claim 21. Claim 21 being allowable, Claim 24 must also be allowable for at least the same reasons as for Claim 21.

Claim 25

Contrary to the Examiner's statement, the cited references do not disclose or suggest determining a relative frequency of use for at least one symbol in a language. In support of the Examiner's contention, the Examiner refers to portions of Li that disclose accumulating a counter for each of 85 bits in a signature vector based on the presence of particular bi-grams in lexicon strings. A bi-gram vector based on the English language alphabet would have bits representing the character *combinations* AA, AB, AC, AD . . . ZW, ZX, ZY, ZZ, for a total of 676 entries.⁸ The Applicant respectfully submits that the Examiner's attempt to equate a symbol in Claim 25 with a bi-gram disclosed by Li is improper, as the bi-gram of Li is a *combination* of characters. Thus, Li discloses determining the frequency of a combination of characters; Li does not disclose determining a relative frequency of use for at least one *symbol* in a language.

⁸ Li at col. 2 ll. 3-6.

The Examiner refers to Li's disclosure that "[a]ll lower case letters are mapped to their upper case letters, all between word spaces are stripped, and all non-alphanumeric characters are mapped to a selected specific non-alphanumeric character (for example, '?')." in support of the Examiner's contention that Li discloses determining the frequency of single characters.⁹ The Applicant respectfully disagrees and notes that the portion of Li relied on by the Examiner refers to a many-to-one mapping, whereby all non-alphanumeric characters are mapped to a single non-alphanumeric character. Therefore, any frequency determination based on this single non-alphanumeric character would relate to the frequency of *multiple* non-alphanumeric characters.

For this reason, the 35 U.S.C. § 103(a) rejection of Claim 25 based on Li in view of Welch is unsupported by the art.

Additionally, since Li does not disclose determining a relative frequency of use for at least one symbol in a language, Li cannot teach assigning a statistical weighting to the at least one symbol based at least in part on a relative frequency of use of the at least one symbol as required by Claim 25. For this additional reason, the 35 U.S.C. § 103(a) rejection of Claim 25 based on Li in view of Welch is unsupported by the art.

And since Li discloses analysis based on *bi-grams*, Li cannot be the to disclose assigning each of the at least one *symbol* to one of a plurality of groups. For this additional reason, the 35 U.S.C. § 103(a) rejection of Claim 25 based on Li in view of Welch is unsupported by the art. Thus, a *prima facie* case of obviousness has not been established and the rejection must be withdrawn.

Claim 26

Contrary to the Examiner's statement, the cited references do not disclose or suggest wherein the assigning further comprises assigning each of the at least one symbol to one of a

⁹ Answer at p. 53.

plurality of groups so as to minimize the difference between the sums of statistical weightings for symbols comprising each group in the plurality of groups. In support of the Examiner's contention, the Examiner refers to a portion of Li that discloses partitioning a signature vector into seven groups. But the disclosure in Li refers to *bi-grams*. Bi-grams are not "at least one symbol in a language" as required by the claim. And the frequencies disclosed in Li are frequencies of bi-grams, not frequencies of symbols in a language. For this additional reason, the 35 U.S.C. § 103(a) rejection of Claim 26 based on Li in view of Welch is unsupported by the art. Thus, a *prima facie* case of obviousness has not been established and the rejection must be withdrawn.

Claim 27

Contrary to the Examiner's statement, the cited references do not disclose or suggest wherein the relative frequency of use comprises the relative frequency of use of symbols in the first character of words in the language. In support of the Examiner's contention, the Examiner refers to a portion of Li that discloses partitioning a signature vector into seven groups. But the disclosure in Li refers to bi-grams. And since Li describes a bi-gram as two characters, Li cannot disclose the limitations of Claim 27 because the result would be nonsensical. Substituting "bi-grams" for "symbols," the claim limitation reads "wherein the relative frequency of use comprises the relative frequency of bi-grams in the first character of words in the language," requiring the determination of the relative frequency of *two*-character sequences in *a* character. For this additional reason, the 35 U.S.C. § 103(a) rejection of Claim 27 based on Li in view of Welch is unsupported by the art. Thus, a *prima facie* case of obviousness has not been established and the rejection must be withdrawn.

Claim 28

The arguments made above with respect to Claim 25 apply here as well.

Claim 32

Claim 32 as presently amended recites in part creating a *single* bit vector based at least in part on the input keyword string. (emphasis added) Thus, the arguments made with respect to Claim 1 apply here as well. Claim 1 being allowable, Claim 32 must also be allowable for at least the same reasons as for Claim 1.

Claim 35

Claim 35 depends from Claim 32. Claim 32 being allowable, Claim 35 must also be allowable for at least the same reasons as for Claim 32.

Claim 36

The arguments made above with respect to Claim 28 apply here as well. Claim 28 being allowable, Claim 36 must also be allowable for at least the same reasons as for Claim 28.

Claim 40

Claim 40 as presently amended recites in part creating a *single* bit vector based at least in part on said input keyword string. (emphasis added) Thus, the arguments made with respect to Claim 21 apply here as well. Claim 21 being allowable, Claim 40 must also be allowable for at least the same reasons as for Claim 21.

Claim 43

Claim 43 depends from Claim 40. Claim 40 being allowable, Claim 43 must also be allowable for at least the same reasons as for Claim 40.

Claims 45, 46, 57, 60, and 61

Claims 45, 46, 57, 60, and 61 include limitations similar to Claims 1, 2, 13, 16, and 17 respectively. Claims 1, 2, 13, 16, and 17 being allowable, Claims 45, 46, 57, 60, and 61 must also be allowable for at least the same reasons as for Claims 1, 2, 13, 16, and 17, respectively.

Claims 65, 68, 69, 70, 71, 72, 76, 79, 80, 84, 87, 89, 90, 101, 104, 105, 106, 109, 112, 113, 114, 115, 116, 120, 123, 124, 125, 128, 131, 133, 134, 142, 145, 146, 147, 150, 151, 152, 153, 154, 155, 158, 159, 160, 163, 165, 166, 174, 177, 178, 179, 182, 183, 184, 185, 186, 187, 190, 191, 192, and 195

Claims 65, 68, 69, 70, 71, 72, 76, 79, 80, 84, 87, 89, 90, 101, 104, 105, 106, 109, 112, 113, 114, 115, 116, 120, 123, 124, 125, 128, 131, 133, 134, 142, 145, 146, 147, 150, 151, 152, 153, 154, 155, 158, 159, 160, 163, 165, 166, 174, 177, 178, 179, 182, 183, 184, 185, 186, 187, 190, 191, 192, and 195 include limitations similar to Claims 21, 16, 25, 26, 27, 28, 32, 16, 36, 40, 16, 1, 2, 13, 16, 17, 18, 21, 16, 25, 26, 27, 28, 32, 16, 36, 37, 40, 43, 1, 2, 13, 16, 17, 18, 16, 25, 26, 27, 28, 32, 16, 36, 40, 16, 1, 2, 13, 16, 17, 21, 16, 25, 26, 27, 28, 32, 16, 36, 40, and 16, respectively. Claims 21, 16, 25, 26, 27, 28, 32, 16, 36, 40, 16, 1, 2, 13, 16, 17, 18, 21, 16, 25, 26, 27, 28, 32, 16, 36, 37, 40, 43, 1, 2, 13, 16, 17, 18, 16, 25, 26, 27, 28, 32, 16, 36, 40, 16, 1, 2, 13, 16, 17, 21, 16, 25, 26, 27, 28, 32, 16, 36, 40, and 16 being allowable, Claims 65, 68, 69, 70, 71, 72, 76, 79, 80, 84, 87, 89, 90, 101, 104, 105, 106, 109, 112, 113, 114, 115, 116, 120, 123, 124, 125, 128, 131, 133, 134, 142, 145, 146, 147, 150, 151, 152, 153, 154, 155, 158, 159, 160, 163, 165, 166, 174, 177, 178, 179, 182, 183, 184, 185, 186, 187, 190, 191, 192, and 195 must also be allowable for at least the same reasons.

The Second 35 U.S.C. § 103 Rejection

Claims 3-9, 47-53, 91-97, 135-141, and 167-173 stand rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Li in view of Welch and further in view of Braun et al.^{10 11} This rejection is respectfully traversed.

Claims 3-9, 47-53, 91-97, 135-141, and 167-173 depend from Claims 1, 45, 89, 133, and 165, respectively, and thus include the limitations of claim 1, 45, 89, 133, and 165. The arguments made above with respect to Claim 1 apply here as well. The 35 U.S.C. § 103(a) rejection of claim 1 based on Li in view of Welch is unsupported by the art, as each and every element as set forth in claim 1 is not found in Li in view of Welch. Therefore, the 35 U.S.C. § 103(a) rejection of dependent claims 3-9, 47-53, 91-97, 135-141, and 167-173 based on Li in view of Welch and further in view of Braun is also unsupported by the art. Thus, no *prima facie* case of obviousness has been established and the 35 U.S.C. § 103 rejection must be withdrawn.

The Third 35 U.S.C. § 103 Rejection

Claims 14-15, 19-20, 22-23, 33-34, 38-39, 41-42, 58-59, 63-64, 66-67, 77-78, 82-83, 85-86, 102-103, 107-108, 110-111, 121-122, 126-127, 129-130, 143-144, 148-149, 156-157, 161-162, 175-176, 180-181, 188-189, and 193-194 stand rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Li in view of Welch and further in view of Albornoz et al.^{12 13}

With this Amendment, Claims 19-20, 38-39, 63-64, and 82-83 have been cancelled without prejudice or disclaimer, rendering the rejection as to these claims moot.

Regarding Claims 14-15, 22-23, 33-34, 41-42, 58-59, 66-67, 77-78, 85-86, 102-103, 107-108, 110-111, 121-122, 126-127, 129-130, 143-144, 148-149, 156-157, 161-162, 175-176, 180-181, 188-189, and 193-194, the arguments made above with respect to the independent claims apply here as well. The 35 U.S.C. § 103(a) rejection of claims based on Li in view of Welch is

¹⁰ U.S. Publication No. 2004/0064787 to Braun et al.

¹¹ Answer at ¶ 5.

¹² U.S. Publication No. 2004/0260929 to Albornoz et al.

¹³ Answer at ¶ 6.

unsupported by the art, as each and every element as set forth in the independent claims is not found in Li in view of Welch. Therefore, the 35 U.S.C. § 103(a) rejection of dependent claims 4-15, 22-23, 33-34, 41-42, 58-59, 66-67, 77-78, 85-86, 102-103, 107-108, 110-111, 121-122, 126-127, 129-130, 143-144, 148-149, 156-157, 161-162, 175-176, 180-181, 188-189, and 193-194 based on Li in view of Welch and further in view of Albornoz et al. is also unsupported by the art. Thus, no *prima facie* case of obviousness has been established and the 35 U.S.C. § 103(a) rejection must be withdrawn.

The Fourth 35 U.S.C. § 103 Rejection

Claims 44, 88, 132, 164, and 196 stand rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Li in view of Welch and further in view of Vagnozzi.^{14 15} This rejection is respectfully traversed.

Claim 44

Contrary to the Examiner's statement, the cited references do not disclose or suggest receiving from a user of the wireless user device an input keyword string comprising one or more words comprising one or more symbols, each symbol representing the first symbol of a word in a search string. The arguments made above with respect to Claim 32 apply here.

Also contrary to the Examiner's statement, Li in view of Welch and further in view of Vagonzzi does not disclose or suggest the searching comprising, for *each* of the elements of the hierarchy ... saving said input keyword string. In support of the Examiner's contention, the Examiner refers to the following portion of Vagonzzi:

Query processing is implemented by computer 52 by way of microprocessor 54 executing instructions from database management program 64. Program 64

¹⁴ U.S. Patent No. 6,499,033 to Vagnozzi.

¹⁵ Answer at ¶ 7.

locates the one or more records that satisfies a particular user query by creating a target keys (e.g., c:0:blue) for each coarse and fine slice and then searches the appropriate index for those target keys, starting with the lowest key valued key (i.e., coarse slice 0). If no key is found, a bit vector of all zeros is returned. If a matching key is found in the index, then the associated link is used to obtain a bit vector for that key. If the link is of type 0, as shown in FIGS. 8 and 9, then the bit vector identified by the link is returned. Where one or both of the keys' links are of type 1; that is, they contain a relative fine slice number (in the case of a coarse key) or a relative record number (in the case of a fine key) rather than a pointer to a bit vector, then a bit vector is created and, for a fine bit vector, the bit corresponding to the record identified by the link is set to one and the remaining bits of the vector being cleared to zero. When creating a coarse bit vector (which includes both ANY bits and ALL bits), the ANY bit corresponding to the fine slice number identified by the link is set to one, with the remaining ANY bits being cleared to zero, and the ALL bit corresponding to the fine slice number identified by the link is set to the same value (0 or 1) as the ALL bit contained in the link, with the other ALL bits being cleared to zero. In this way, query processing can always be carried out using bit vectors, regardless of which type of link is stored in the index.¹⁶

Nowhere does the cited portion of Vagonzzi disclose for each of said elements of a hierarchy, saving an input keyword string.

Also contrary to the Examiner's statement, Li in view of Welch and further in view of Vagonzzi does not disclose or suggest the searching comprising, for *each* of the elements of the hierarchy ... applying a logical "AND" operation to the bit vector of the element and a bit vector based at least in part on the input keyword string. Nowhere does the cited portion of Vagonzzi disclose for each of the elements of a hierarchy, applying a logical "AND" operation to the bit vector of the element and a bit vector based at least in part on an input keyword string.

Also contrary to the Examiner's statement, Li in view of Welch and further in view of Vagonzzi does not disclose or suggest the searching comprising, for *each* of the elements of the hierarchy ... if the result is nonzero, removing from the input keyword string any words in the input keyword string that are prefixes of words in the element. Nowhere does the cited portion of Vagonzzi disclose for each of the elements of a hierarchy, if a search result is nonzero,

¹⁶ Vagonzzi at col. 11 ll. 1-27.

removing from an input keyword string any words in the input keyword string that are prefixes of words in an element.

Also contrary to the Examiner's statement, Li in view of Welch and further in view of Vagonzzi does not disclose or suggest the searching comprising, for *each* of the elements of the hierarchy ... if the input keyword string is empty, adding the element to a list of matched items. Nowhere does the cited portion of Vagonzzi disclose for each of the elements of a hierarchy, if an input keyword string is empty, adding the element to a list of matched items.

Also contrary to the Examiner's statement, Li in view of Welch and further in view of Vagonzzi does not disclose or suggest the searching comprising, for *each* of the elements of the hierarchy ... restoring the input keyword string. Nowhere does the cited portion of Vagonzzi disclose for each of the elements of a hierarchy, restoring an input keyword string.

Claims 88, 132, 164, and 196

Claims 88, 132, 164, and 196 include limitations similar to Claim 44. Claim 44 being allowable, Claims 88, 132, 164, and 196 must also be allowable for at least the same reasons as for Claim 44.

The Fifth 35 U.S.C. § 103 Rejection

Claims 197- 206 stand rejected under 35 U.S.C. § 103(a) as allegedly being unpatentable over Li in view of Ronchi et al.^{17 18} This rejection is respectfully traversed. The arguments made above with respect to Claim 25 apply here as well. Claim 25 being allowable, Claims 197- 206 must also be allowable for at least the same reasons as for Claim 25.

¹⁷ U.S. Patent No. 6,496,836 to Ronchi et al.

¹⁸ Answer at ¶ 8.

In view of the foregoing, it is respectfully asserted that the claims are now in condition for allowance.

Conclusion

It is believed that this Amendment places the above-identified patent application into condition for allowance. Early favorable consideration of this Amendment is earnestly solicited.

If, in the opinion of the Examiner, an interview would expedite the prosecution of this application, the Examiner is invited to call the undersigned attorney at the number indicated below.

The Applicant respectfully requests that a timely Notice of Allowance be issued in this case.

Please charge any additional required fee or credit any overpayment not otherwise paid or credited to our deposit account No. 50-3557.

Respectfully submitted,

NIXON PEABODY LLP

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